

WHAT IS CLAIMED IS:

1. An integrated controlled multi-air conditioner system comprising:

5           a plurality of groups of indoor units;  
          a plurality of outdoor units connected with said indoor unit groups, respectively;

          at least one local control means connected in common with said outdoor units over an internal network for  
10       controlling operations of said outdoor units; and

          protocol conversion means connected with said local control means, said protocol conversion means converting different communication protocols of data transmitted and received between an external Internet network and said  
15       internal network into each other to transfer a control command received over said external Internet network to at least one of said outdoor units.

2. The integrated controlled multi-air conditioner  
20       system as set forth in claim 1, further comprising integrated control means for transferring a control command to said outdoor units via said protocol conversion means to control said outdoor units in an integrated manner.

25       3. The integrated controlled multi-air conditioner

system as set forth in claim 2, wherein said integrated control means is assigned a public Internet protocol (IP) address and a private IP address so that it is accessible from said external Internet network and internal network,  
5 respectively.

4. The integrated controlled multi-air conditioner system as set forth in claim 3, wherein said protocol conversion means is assigned a public IP address and a private  
10 IP address so that it is accessible from said external Internet network and internal network, respectively.

5. The integrated controlled multi-air conditioner system as set forth in claim 2, further comprising IP translation/sharing means assigned a public IP address so that  
15 it is controllable from said external Internet network, said IP translation/sharing means translating said public IP address contained in a control command received from said external Internet network into a private IP address and  
20 transferring the received control command to said integrated control means or protocol conversion means on the basis of the translated private IP address.

6. The integrated controlled multi-air conditioner  
25 system as set forth in claim 5, wherein said IP

translation/sharing means is adapted to store a table including private IP addresses and port numbers assigned respectively to all devices connected to said internal network.

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7. The integrated controlled multi-air conditioner system as set forth in claim 2, further comprising a hub for concentrating transfer lines of all devices connected to said internal network at a center of said internal network and  
10 relaying transmission and reception of data between said transfer lines and said external Internet network.

8. The integrated controlled multi-air conditioner system as set forth in claim 2, wherein said integrated  
15 control means includes:

a timer for establishing synchronization of a control system of said integrated control means;

a key input unit for inputting commands for control of the operations of said outdoor units;

20 a display unit for displaying the control commands inputted through said key input unit and the associated outdoor unit/indoor unit control states;

a central processing unit for controlling signal input and output of said key input unit and display unit and  
25 transmission and reception of data over said internal network;

and

a wired interface for transmitting and receiving data between said central processing unit and said protocol conversion means according to an Ethernet protocol.

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9. The integrated controlled multi-air conditioner system as set forth in claim 8, wherein said integrated control means further includes a wireless interface for transmitting and receiving data in a wireless manner based on  
10 a wireless Ethernet protocol.

10. The integrated controlled multi-air conditioner system as set forth in claim 2, wherein said protocol conversion means includes:

15 an Internet interface for transmitting and receiving data to/from said external Internet network according to an Ethernet protocol;

a serial communication interface for transmitting and receiving data to/from said local control means according to a  
20 serial communication protocol; and

communication control means for controlling transmission and reception of data between said Internet interface and said serial communication interface.

25 11. The integrated controlled multi-air conditioner

system as set forth in claim 10, wherein said communication control means includes:

an address storage unit for storing a private IP address and port number assigned to said local control means; and

5        a protocol converter for converting different communication protocols of data transmitted and received between said Internet interface and said serial communication interface into each other.

10        12. The integrated controlled multi-air conditioner system as set forth in claim 11, wherein said communication control means further includes a graphic user interface (GUI) storage unit for storing a GUI-based air conditioner control program for enabling a user to remotely control said local  
15        control means or outdoor units using an Internet terminal accessible to said external Internet network.

20        13. The integrated controlled multi-air conditioner system as set forth in claim 12, wherein said GUI storage unit is adapted to send said air conditioner control program over said external Internet network in response to a request from said Internet terminal.

25        14. An integrated controlled multi-air conditioner system comprising:

a plurality of groups of indoor units;

a plurality of outdoor units connected with said indoor unit groups, respectively;

5 a plurality of local control means connected with said outdoor units over an internal network for controlling operations of said outdoor units, respectively; and

10 a plurality of protocol conversion means networked with said plurality of local control means, respectively, each of said plurality of protocol conversion means converting different communication protocols of data transmitted and received between an external Internet network and said internal network into each other to transfer a control command received over said external Internet network to a corresponding one of said outdoor units.

15 15. The integrated controlled multi-air conditioner system as set forth in claim 14, further comprising integrated control means for transferring a control command to said outdoor units via said protocol conversion means to control  
20 said outdoor units in an integrated manner.

25 16. The integrated controlled multi-air conditioner system as set forth in claim 15, wherein said integrated control means is assigned a public Internet protocol (IP) address and a private IP address so that it is accessible from

said external Internet network and internal network,  
respectively.

17. The integrated controlled multi-air conditioner  
5 system as set forth in claim 15, wherein said protocol  
conversion means is assigned a public IP address and a private  
IP address so that it is accessible from said external  
Internet network and internal network, respectively.

10 18. The integrated controlled multi-air conditioner  
system as set forth in claim 15, further comprising IP  
translation/sharing means assigned a public IP address so that  
it is controllable from said external Internet network, said  
IP translation/sharing means translating said public IP  
15 address contained in a control command received from said  
external Internet network into a private IP address and  
transferring the received control command to said integrated  
control means or protocol conversion means on the basis of the  
translated private IP address.

20 19. The integrated controlled multi-air conditioner  
system as set forth in claim 18, wherein said IP  
translation/sharing means is adapted to store a table  
including private IP addresses and port numbers assigned  
25 respectively to all devices connected to said internal

network.

20. The integrated controlled multi-air conditioner system as set forth in claim 15, further comprising a hub for  
5 concentrating transfer lines of all devices connected to said internal network at a center of said internal network and relaying transmission and reception of data between said transfer lines and said external Internet network.

10 21. The integrated controlled multi-air conditioner system as set forth in claim 15, wherein said integrated control means includes:

a timer for establishing synchronization of a control system of said integrated control means;

15 a key input unit for inputting commands for control of the operations of said outdoor units;

a display unit for displaying the control commands inputted through said key input unit and the associated outdoor unit/indoor unit control states;

20 a central processing unit for controlling signal input and output of said key input unit and display unit and transmission and reception of data over said internal network; and

a wired interface for transmitting and receiving data  
25 between said central processing unit and said protocol



conversion means according to an Ethernet protocol.

22. The integrated controlled multi-air conditioner system as set forth in claim 21, wherein said integrated control means further includes a wireless interface for transmitting and receiving data in a wireless manner based on a wireless Ethernet protocol.

23. The integrated controlled multi-air conditioner system as set forth in claim 15, wherein said protocol conversion means includes:

an Internet interface for transmitting and receiving data to/from said external Internet network according to an Ethernet protocol;

a serial communication interface for transmitting and receiving data to/from said local control means according to a serial communication protocol; and

communication control means for controlling transmission and reception of data between said Internet interface and said serial communication interface.

24. The integrated controlled multi-air conditioner system as set forth in claim 23, wherein said communication control means includes:

an address storage unit for storing a private IP address

and port number assigned to said local control means; and

a protocol converter for converting different communication protocols of data transmitted and received between said Internet interface and said serial communication interface into each other.

25. The integrated controlled multi-air conditioner system as set forth in claim 24, wherein said communication control means further includes a graphic user interface (GUI) storage unit for storing a GUI-based air conditioner control program for enabling a user to remotely control said local control means or outdoor units using an Internet terminal accessible to said external Internet network.

26. The integrated controlled multi-air conditioner system as set forth in claim 25, wherein said GUI storage unit is adapted to send said air conditioner control program over said external Internet network in response to a request from said Internet terminal.